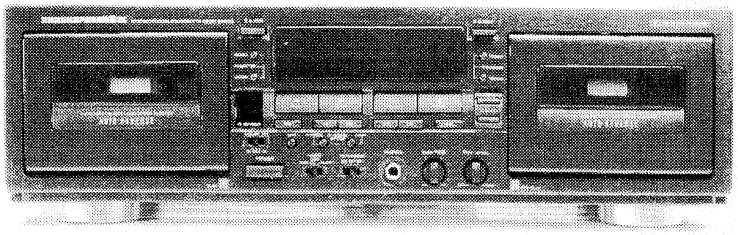
Service Manual

SD555 F, U
74SD555/01B/02B/05B

Stereo Cassette Tape Deck

MARA-00684



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修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。
Please use this service manual with referring to the user guide (D.F.U) without fail.

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model SD555

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SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard NO.1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

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1. DISASSEMBLY INSTRUCTIONS

1. How to Remove the Front PANEL A'ssy

(1) Remove the six screws (SPECIAL SCREW) (101) in the side of the top cover (35). Move the top cover to the rear and rise it to remove it.

(2) Disconnect all lead connectors.

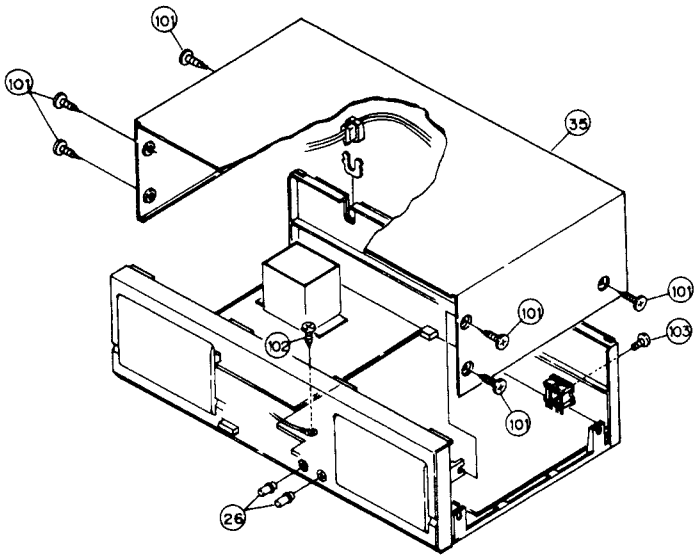
C. Mecha (A)	P.B. Head wire → CB131	Audio P.W. board
C. Mecha (B)	ERASE Head wire → CB143	Power P.W. board
	PB/REC Head wire → CB141	Audio P.W. board
Display P.W. board	CW121-1A → CN121-2A CW121-1B → CN121-2B	Audio P.W. board

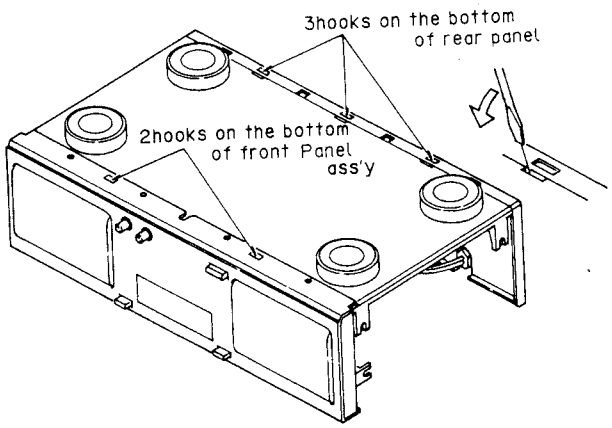
(3) Remove the Volume knob (26).

(4) Remove the screw (3X8CBTS(P)-B) (103).

(5) Remove the screw (3×8CBTS(S)-B) (102).

(6) Remove the two Hooks on the bottom, Front Panel Ass'y can be removed towards the front.





2. How to Remove the Cassette Mechanisms

Remove the four mechanism retaining screws (3X8CBTS(P)-B) (103), (3X8CBTS(S)-B) (102) and take out C. Mechanism (A) (22) and C. Mechanism (B) (23).

3. How to Remove the Display P.W. board

(1) Disconnect leads connectors.

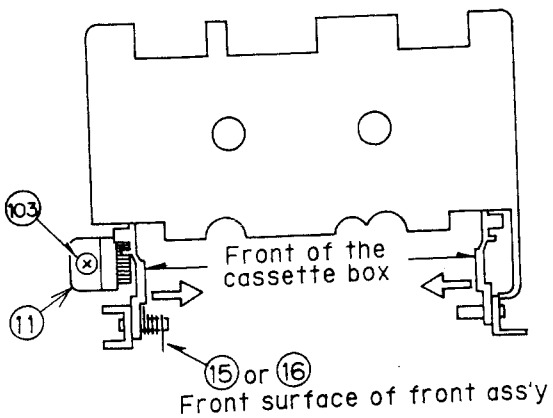
C. Mecha (A)	→ CN242	Display P.W. board
C. Mecha (B)	→ CN241	

(2) Remove the six Display P.W. board retaining screws (3X8CBTS(P)-B) (103) and take out the Display P.W. board.

4. How to Remove the Cassette Door

(1) Remove the Mini Damper (11) retaining screw (3X8CBTS(P)-B) (103) and take out the Mini Damper (11).

(2) Hold the legs of the CASSETTE BOX folded inwards and pull up to remove the CASSETTE BOX (13) and BOX SPRING (15) (16).



5. How to Remove the Back panel

(1) Remove the top cover (35) and front Panel. Ass'y. (Refer to section 1.)

(2) Remove the screw (3X8CBTS(P)-B) (103) that is holding the 4P pin jack.

(3) Remove the busing (6) (7) that is fixing power supply cord from back panel (48).

(4) Remove the three hooks on the bottom of back panel (48) and pull the unit back to detach it.

6. How to Remove the Audio P.W. Board

(1) Remove the top cover (35) and the front esc. Ass'y. (Refer to section 1.)

(2) Remove the screw (3X8CBTS(P)-B) (103) that is holding the 4P pin jack.

(3) Remove the connectors from the audio P.W. board and power P.W. board.
power P.W. board CW191 → CN191 audio P.W. board

(4) Remove the five screws (3X8CBTS(P)-B) (103), (3X8CBTS(S)-B) (102) the audio P.W. board can be removed by rising it.

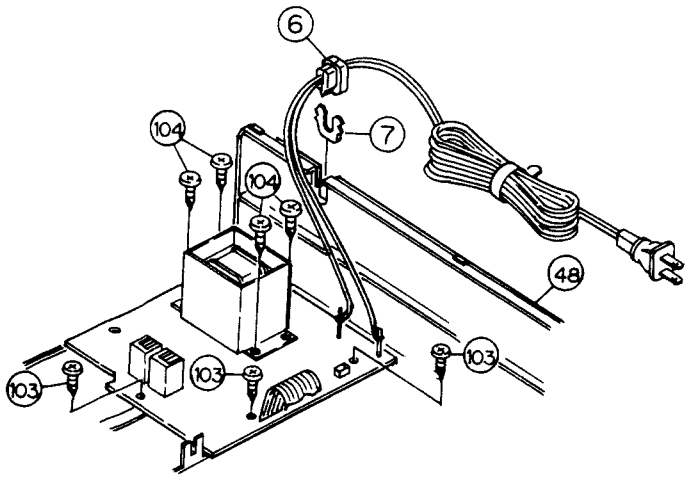
7. How to Remove the Power Supply P.W. board

(1) Remove the top cover (35). (Refer to section 1.)

(2) Remove the busing (6) (7) that is fixing power supply cord from rear panel (48).

(3) Remove the connectors from the audio P.W. board and power P.W. board.
power P.W. board CW191 → CN191 Audio P.W. board

(4) Remove the seven screws (4X10CBST(P)-Z) (104), (3X8CBST(P)-B) (103) that are holding the power transformer and P.W. board. The power supply P.W. board can be removed by rising it.



2. ADJUSTING AND CHECKING THE MECHANISM SECTION

1. Replacing the Pinch Roller

Before replacing the pinch roller, clean the tape contact surface of the pinch roller and the capstan shaft.

Most causes of poor tape transport can be traced to dirty pinch roller and capstan shaft.

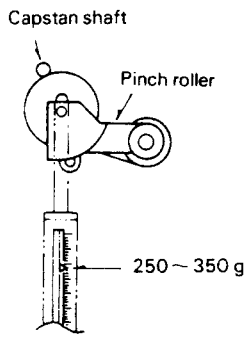
Remove the clips that press the pinch roller and pull the pinch roller forward to remove it.

After replacing, run a padless C-90 tape to check for tape curls at the tape guide section of the head.

2. Checking the Pressure Force of the Pinch Roller

In the playback mode, hook a spring weight onto the bracket at the center of the pinch roller. After separating the pinch roller from the capstan shaft, allow the pinch roller to contact the capstan shaft again. Check to make sure the spring weight reads between 250—350 g when the pinch roller starts to rotate.

Replace the pinch roller when it does not conform to the standard specification values.



3. Replacing the Record/Playback Head

(1) How to remove the R/P HEAD.

1) Remove securing screw and azimuth adjusting screw from the record/playback head.
2) Remove the soldered head wire and disassemble the mechanical unit to remove the record/playback head.

(2) How to assemble the R/P HEAD.

Reverse the above (1) procedures for removing the R/P HEAD.

* Solder the HEAD WIRE according to the diagram.

mechanism (recording/playback head)

4. Checking the Take-up Torque

Load the cassette type torque meter (SONY TW2111).

Check to make sure that the average torque meter reading is within 30-70 g-cm during playback.

5. Checking the FF and REW Torques

Load the cassette type torque meter (SONY TW2231). Check to make sure the torque meter indicates within 80~170 g-cm at the end of FF and REW.

6. Checking the Back Tension Torque During Record/Playback

Load the cassette type torque meter (SONY TW2111); check to make sure the torque meter reads between 2 —6 g-cm during playback and that there is no unevenness.

If it is not within this range, replace the reel ass'y or Washer.

7. Checking the FF and REW Times

Load a C-60 cassette tape check to make sure the tape is fast forwarded or rewound within 120 seconds. If it is not within this range, check sections 5 and 6.

8. Checking the Existence of a Cassette Housing and the Operation of the Erase Prevention, Metal and Chrome Switch

Confirm that the sensor arm properly detecting the tape type detection holes on the cassette housing.

3. ADJUSTING THE ELECTRICAL SECTIONS

• Measuring instruments necessary for adjustments

(1) Audio signal generator
(2) Variable resistance attenuator
(3) Electronic voltmeter
(4) Oscilloscope
(5) Frequency counter
(6) Adjustment screwdriver
(7) Trap coil adjustment square stick
(8) Test tapes (A-BEX TCC-112)
(A-BEX TCC-130, TCC-153, TCC-262B/162B)
(TDK AC-514)
(9) Transport Check cassette tape (A-BEX TCC-902)
(10) Lead line with alligator clip

• Caution on adjusting

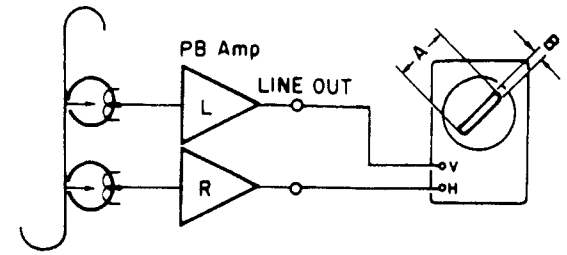
(1) Before adjusting, clean the head surface, capstan and the pinch roller with a gauze or a cotton swab moistened with alcohol.
(2) Demagnetize the R/P HEAD and the E. HEAD with a head eraser.
(3) Completely demagnetize the adjustment screwdriver.
(4) Unless instructed otherwise, set the various controls as follows:
○ INPUT volume ..... maximum
○ DOLBY NR switch ..... OFF
○ BIAS volume ..... Center click position

1. Tape Transport Check

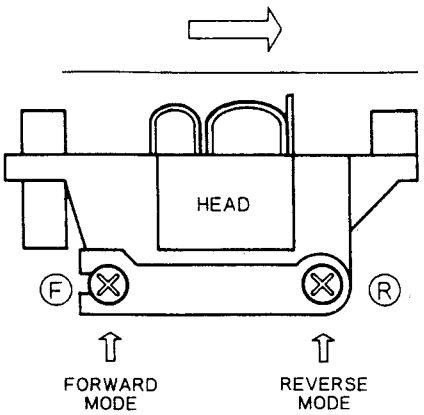
Load the transport check cassette. In the operational mode, illuminate the fixing guides of the R/P HEAD with a lamp and check to make sure the tape edge does not come in contact with the tape guide section.
The tape transport is the most important element in determining the performance of a cassette deck.
Avoid moving the various adjustment screws, nuts, etc., as much as possible. Refer to the pages on "Adjusting and Checking the Mechanism Section" when replacing or adjusting the R/P HEAD.

2. Adjusting the Azimuth

(1) After completing the tape transport check, load the test tape (A-BEX TCC-153).
(2) Playback the test tape; adjust the azimuth screw so that section A of the resurge wave form is maximum and section B is minimum.

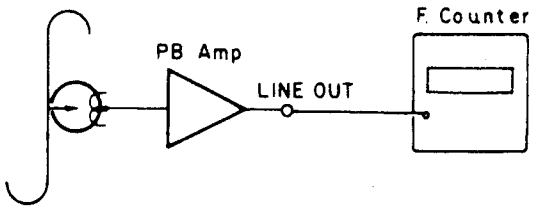


A-BEX TCC-153



3. Checking and Adjusting the Tape Speed

(1) Connect the frequency counter to the LINE OUT terminal and load test tape (A-BEX TCC-112)
(2) Load cassette tapes on both cassette decks A and B. Next, on the deck (A or B) whose speed is to be adjusted, while holding down the PLAY, FF and REW buttons together, press the POWER switch. After the power has been on for about two seconds, the Remote Control Indicator "■" in Display will light up and the cassette deck will begin to play in speed adjustment mode.
(Speed adjustments can not be made, unless this mode is first selected.)
(3) At first high speed adjustments, press the DUBBING SPEED "HIGH" button and use Meter Unit RT554 for Cassette Deck A and RT552 for Cassette Deck B.
Next normal speed adjustements, press the DUBBING SPEED "NORMAL" button and use Meter Unit RT553 for Cassette Deck A and RT551 for Cassette Deck B.
(Note that speed adjustment mode is cancelled when the tape is ejected.)



A-BEX TCC-112

Mode	A/B	Adjusting volume number	F. counter (Hz)
Normal speed	A	RT-553	3020±10
	B	RT-551	3010±10
High speed	A	RT-554	6030±20
	B	RT-552	6020±20

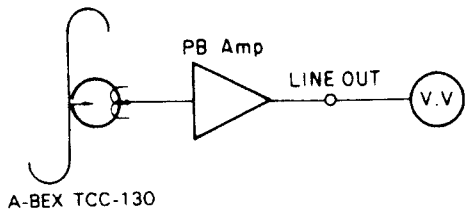
4. Adjusting the Playback Section

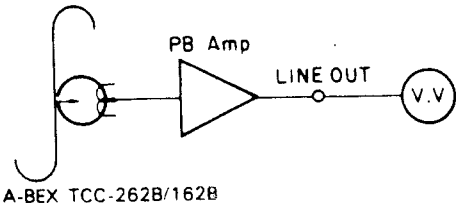
(1) Adjusting the playback level

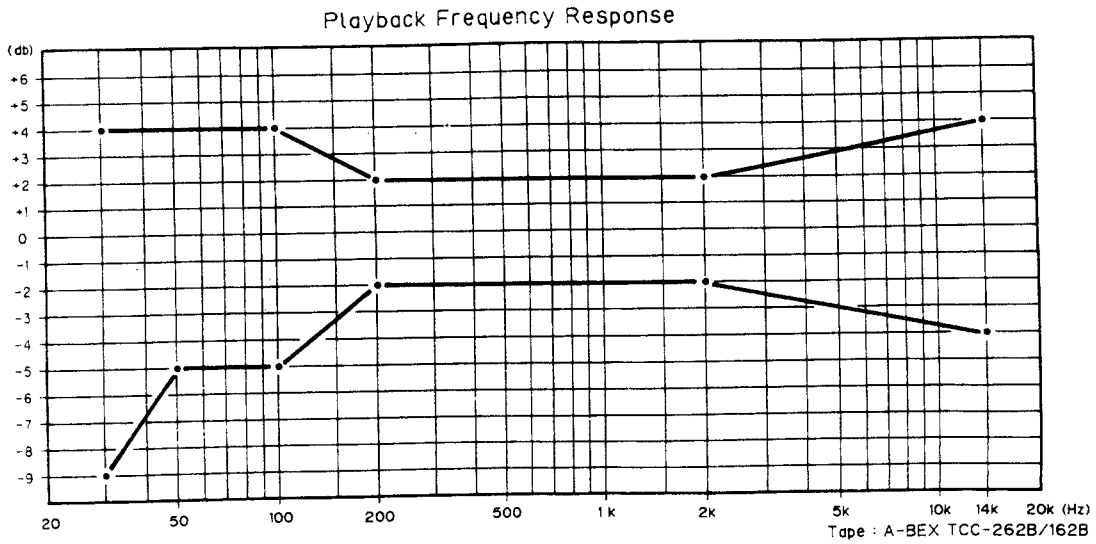
- A-deck Playback the Dolby standard level test tape (A-BEX TTC-130) and adjust RT-101 (L ch), RT-201 (R ch) so that the LINE OUT voltage becomes 0 dB (775 mV).
- B-deck Playback the Dolby standard level test tape (A-BEX TTC-130) and adjust RT-102 (L ch), RT-202 (R ch) so that the LINE OUT voltage becomes 0 dB (775 mV).

(2) Adjusting the playback frequency response

Playback the test tape (A-BEX TCC-262B/162B) and check to make sure that the frequency response meets the specifications in the diagram.





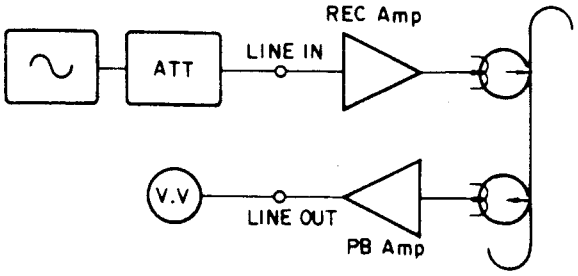


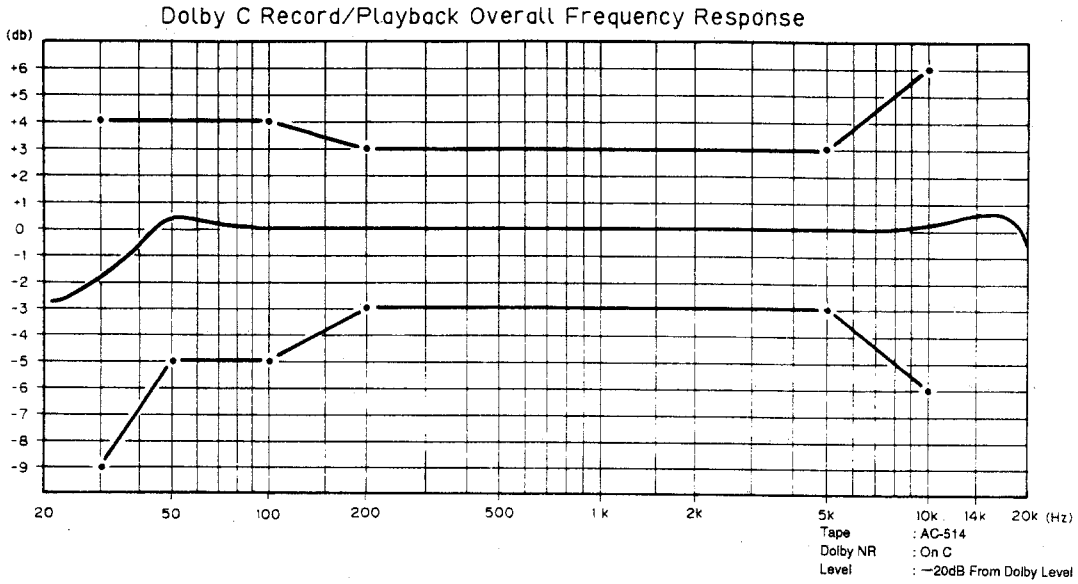
5. Adjusting the Recording Section

(1) Adjusting the record/playback overall frequency response. (HIgh)

1) Load the test tape AC-514, record a signal with an input level of −40 dB. 1 kHz at the LINE IN terminal; playback this recording.

2) Change the frequency of the input signal to 10 kHz, record and playback; adjust RT-105 (L ch), RT-205 (R ch) so that the characteristic standards meet the following diagram when compared to the 1 kHz signal output level.
(The other TAPE POSITIONS will automatically be adjusted by finishing of the foregoing adjustments.)





(2) Adjusting the record/playback levels (HIgh)

1) Load a AC-514 tape and after having recorded a signal of 1 kHz (−20 dB), play it back.

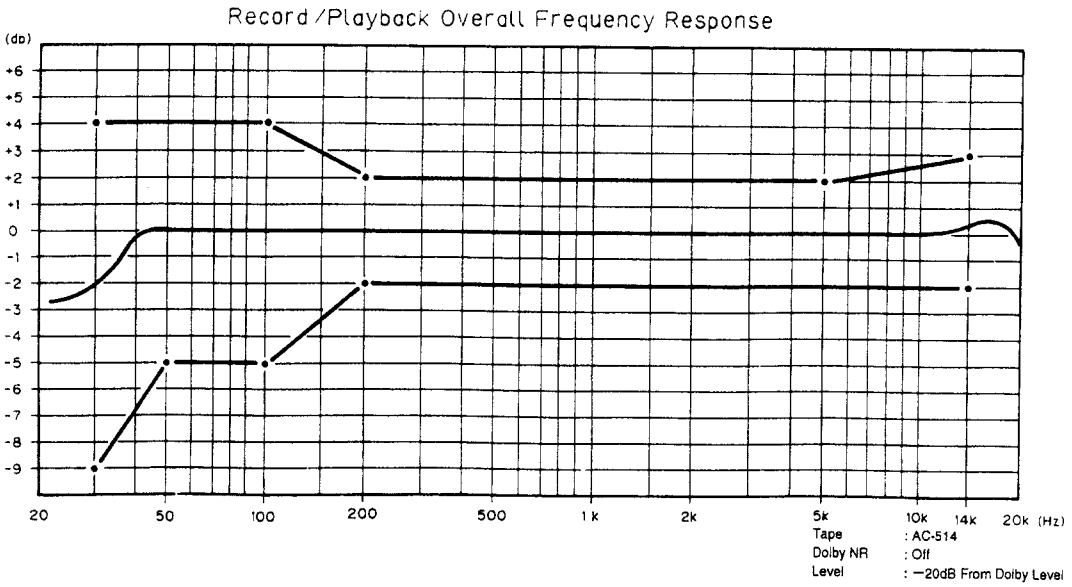
2) Adjust RT-103 (L ch) and RT-203 (R ch) so that the output from the line out terminal has the same value as the output when monitoring the recording.

(3) Checking the Dolby C record/playback overall frequency response

1) Set the DOLBY NR switch to the "C" position.

2) Using the test tapes AC-514, perform record/playback in the same manner as 5-(1).

3) Check to make sure that the record/playback overall frequency response meets the specifications in the diagram.



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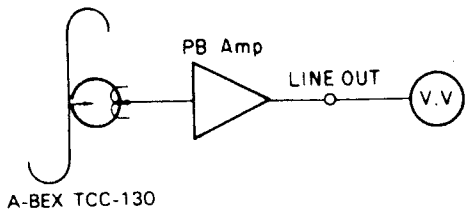
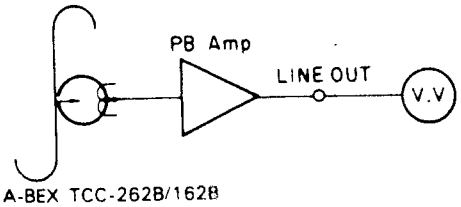
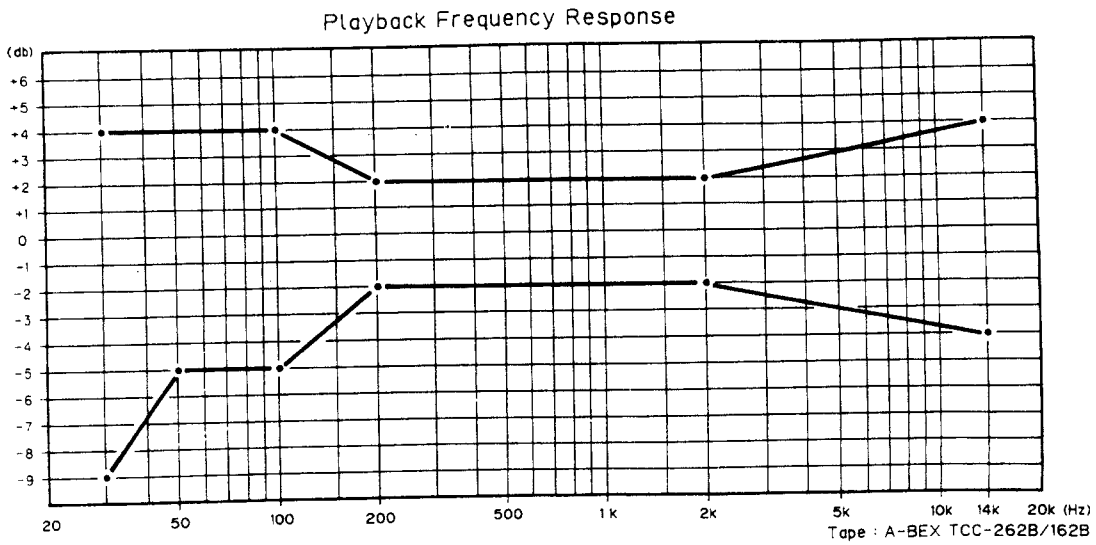
- B-deck Playback the Dolby standard level test tape (A-BEX TTC-130) and adjust RT-102 (L ch), RT-202 (R ch) so that the LINE OUT voltage becomes 0 dB (775 mV).

(2) Adjusting the playback frequency response

Playback the test tape (A-BEX TCC-262B/162B) and check to make sure that the frequency response meets the specifications in the diagram.







5. Adjusting the Recording Section

(1) Adjusting the record/playback overall frequency response. (HIgh)

1) Load the test tape AC-514, record a signal with an input level of −40 dB. 1 kHz at the LINE IN terminal; playback this recording.

2) Change the frequency of the input signal to 10 kHz, record and playback; adjust RT-105 (L ch), RT-205 (R ch) so that the characteristic standards meet the following diagram when compared to the 1 kHz signal output level.
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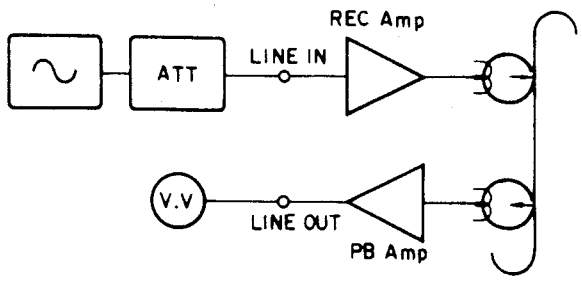
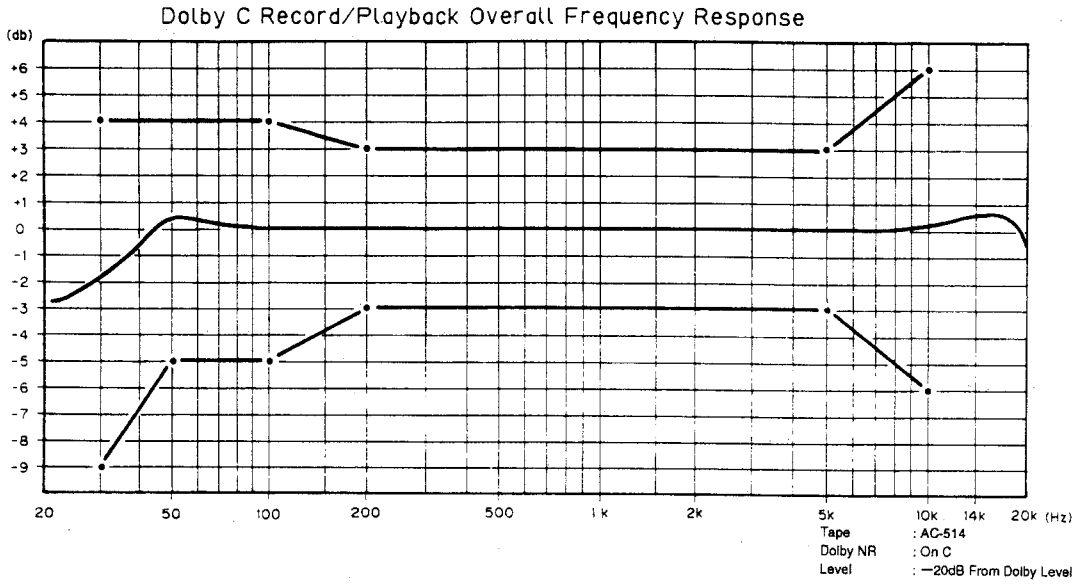




(2) Adjusting the record/playback levels (HIgh)

1) Load a AC-514 tape and after having recorded a signal of 1 kHz (−20 dB), play it back.

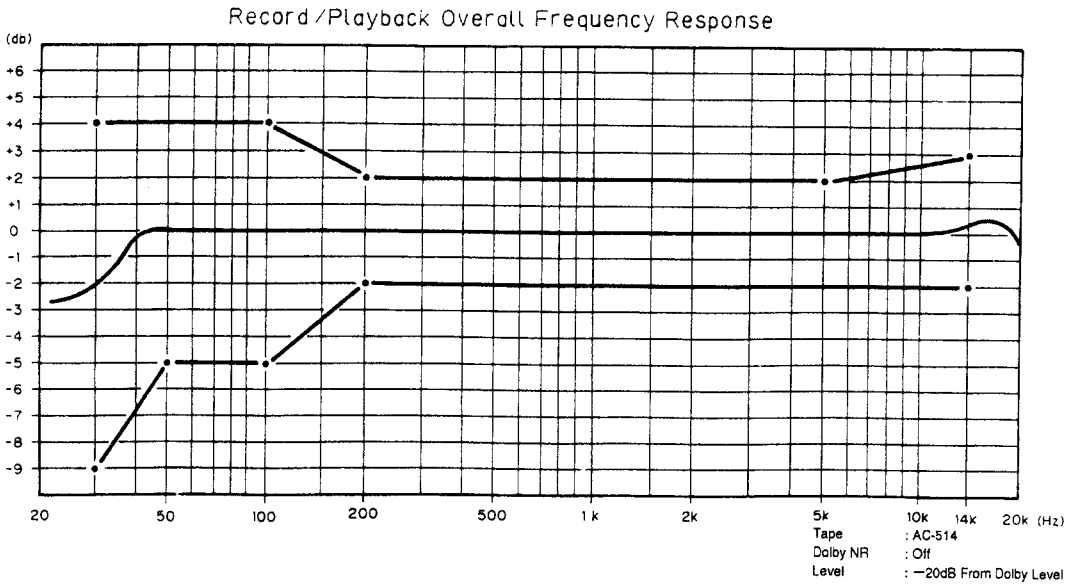
2) Adjust RT-103 (L ch) and RT-203 (R ch) so that the output from the line out terminal has the same value as the output when monitoring the recording.

(3) Checking the Dolby C record/playback overall frequency response

1) Set the DOLBY NR switch to the "C" position.

2) Using the test tapes AC-514, perform record/playback in the same manner as 5-(1).

3) Check to make sure that the record/playback overall frequency response meets the specifications in the diagram.



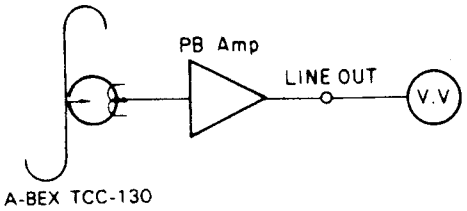
4. Adjusting the Playback Section

(1) Adjusting the playback level

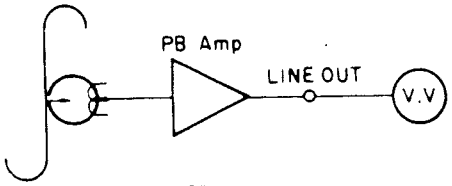
- A-deck Playback the Dolby standard level test tape (A-BEX TTC-130) and adjust RT-101 (L ch), RT-201 (R ch) so that the LINE OUT voltage becomes 0 dB (775 mV).
- B-deck Playback the Dolby standard level test tape (A-BEX TTC-130) and adjust RT-102 (L ch), RT-202 (R ch) so that the LINE OUT voltage becomes 0 dB (775 mV).

(2) Adjusting the playback frequency response

Playback the test tape (A-BEX TCC-262B/162B) and check to make sure that the frequency response meets the specifications in the diagram.

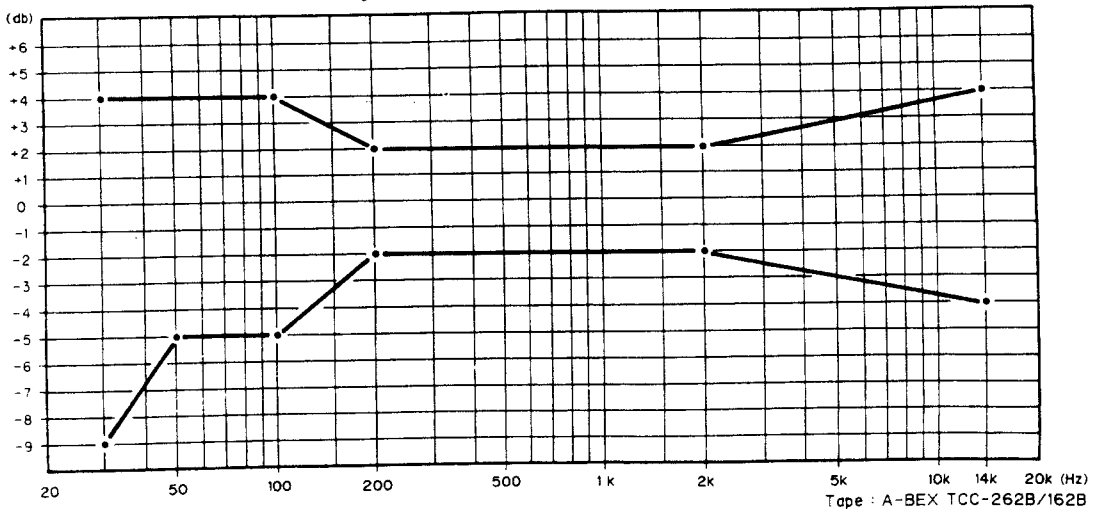


A-BEX TCC-130



A-BEX TCC-262B/162B

Playback Frequency Response



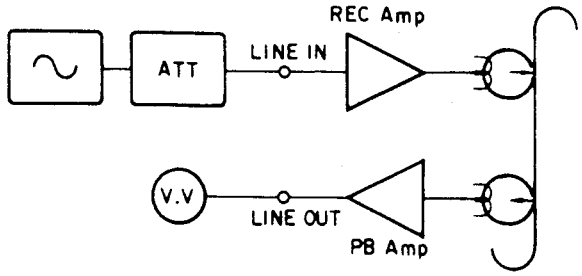
Tape : A-BEX TCC-262B/162B

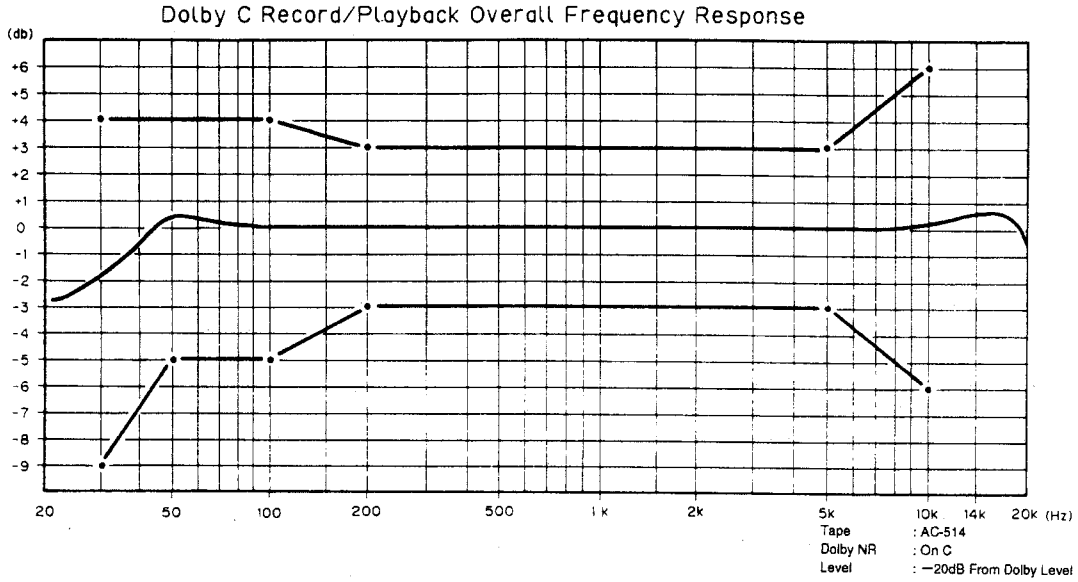
5. Adjusting the Recording Section

(1) Adjusting the record/playback overall frequency response. (HIgh)

1) Load the test tape AC-514, record a signal with an input level of −40 dB. 1 kHz at the LINE IN terminal; playback this recording.

2) Change the frequency of the input signal to 10 kHz, record and playback; adjust RT-105 (L ch), RT-205 (R ch) so that the characteristic standards meet the following diagram when compared to the 1 kHz signal output level.
(The other TAPE POSITIONS will automatically be adjusted by finishing of the foregoing adjustments.)





(2) Adjusting the record/playback levels (HIgh)

1) Load a AC-514 tape and after having recorded a signal of 1 kHz (−20 dB), play it back.

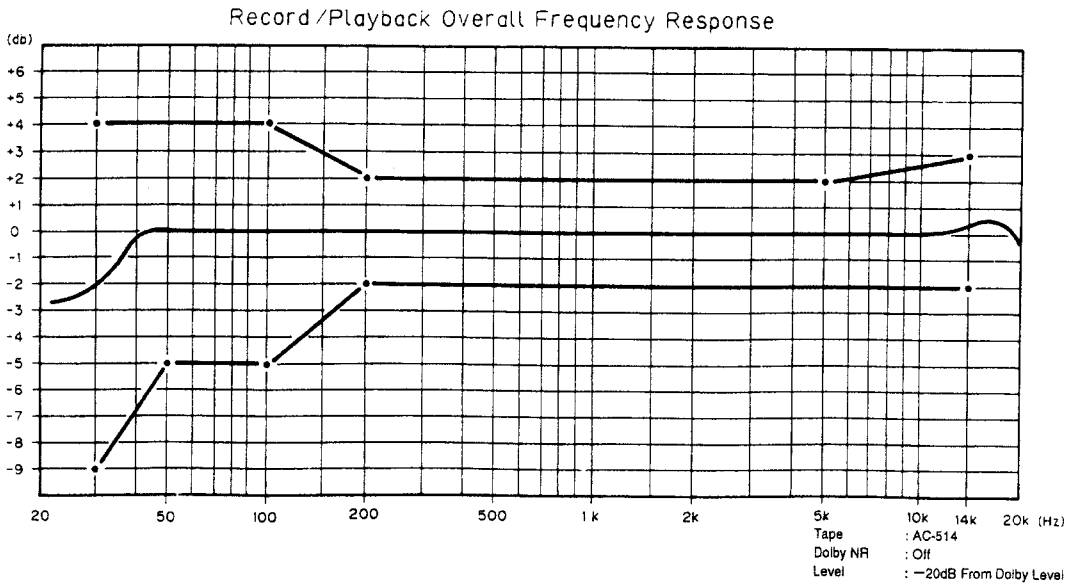
2) Adjust RT-103 (L ch) and RT-203 (R ch) so that the output from the line out terminal has the same value as the output when monitoring the recording.

(3) Checking the Dolby C record/playback overall frequency response

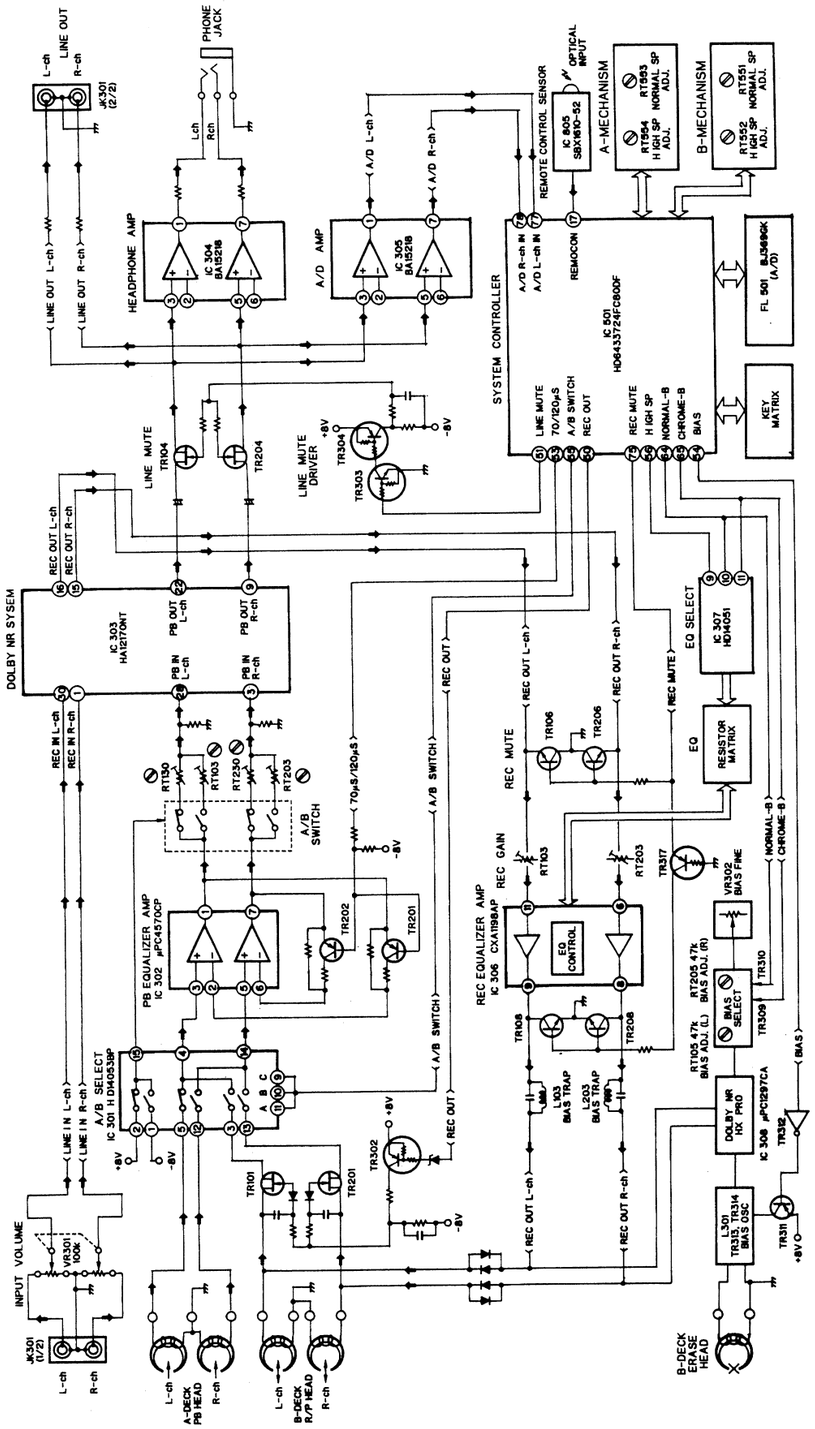
1) Set the DOLBY NR switch to the "C" position.

2) Using the test tapes AC-514, perform record/playback in the same manner as 5-(1).

3) Check to make sure that the record/playback overall frequency response meets the specifications in the diagram.



4. BLOCK DIAGRAM

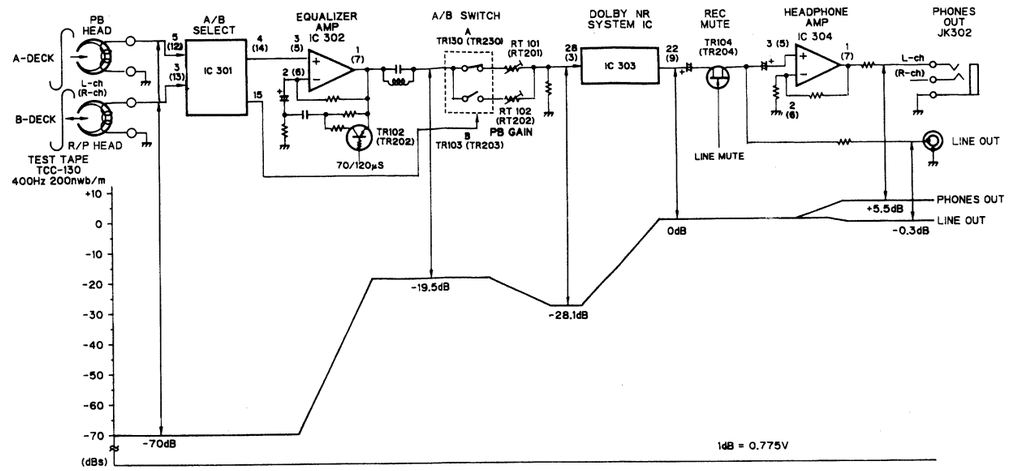


5. LEVEL DIAGRAM

PLAYBACK SYSTEM

TCC-130 DOLBY B-TYPE
400 Hz 200 nwb/m

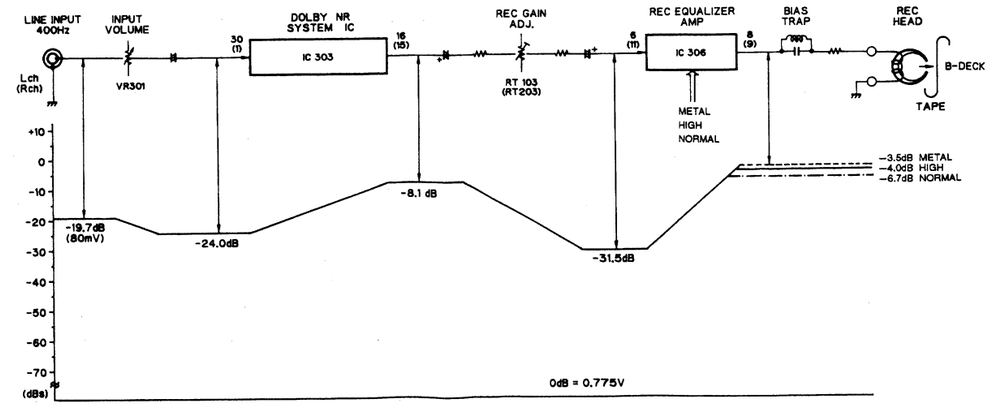
PLAYBACK MODE



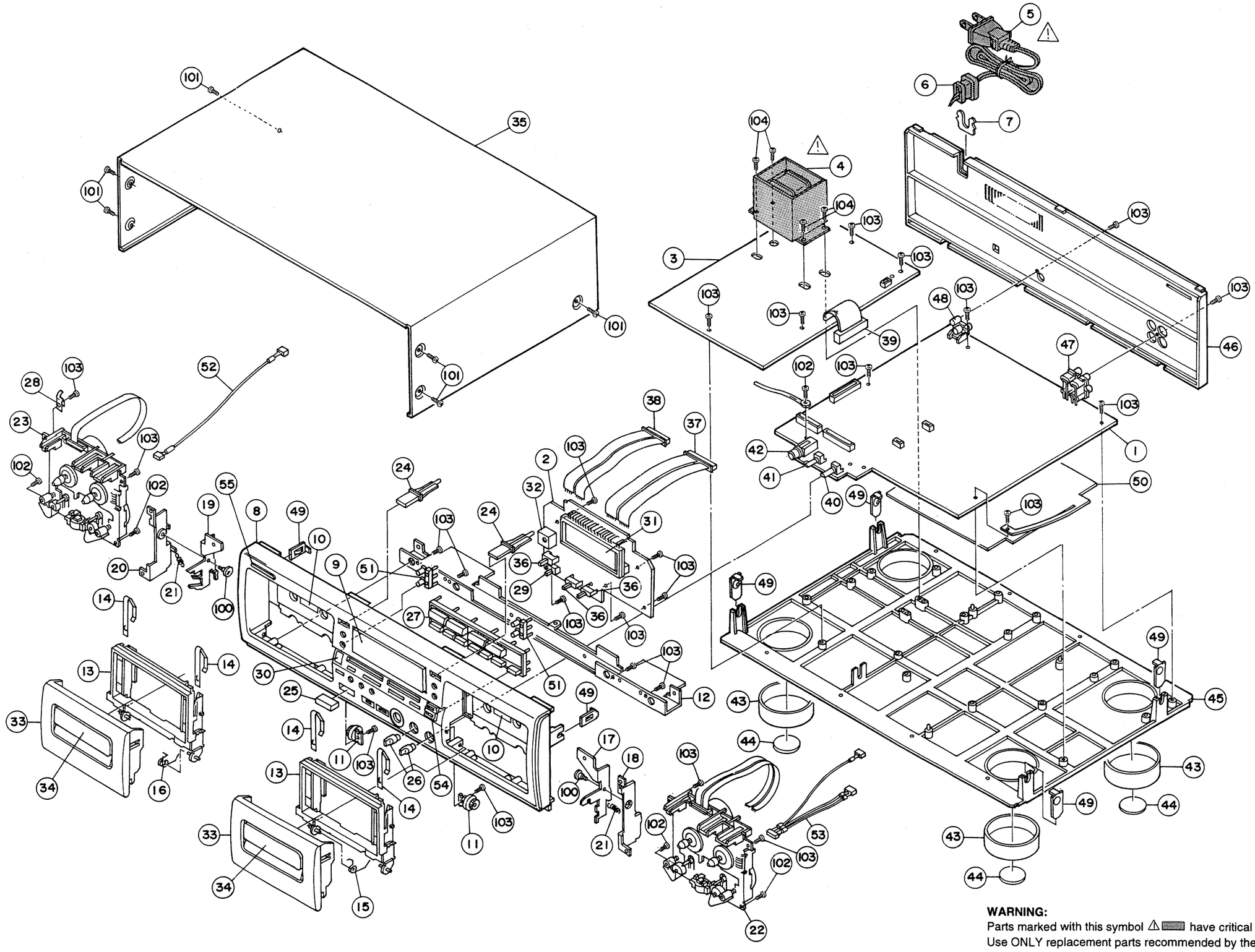
RECORDING SYSTEM

INPUT FREQUENCY
400 Hz

REC MODE



6. EXPLODED VIEW AND PARTS LIST

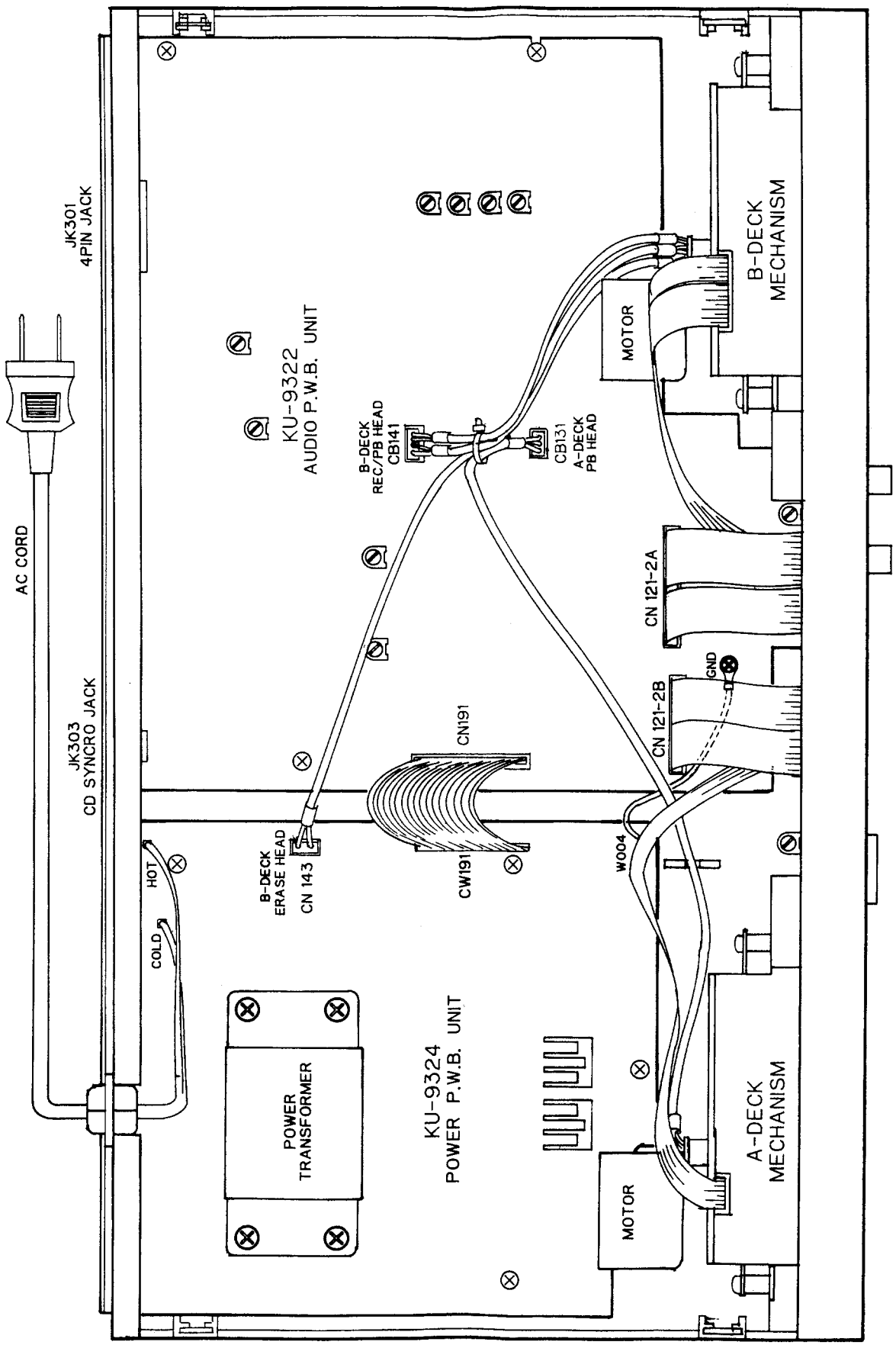


WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristic.
Use ONLY replacement parts recommended by the manufacturer.

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (USA/JPN)
⚠ 4	01/02/05	4822 146 10584	MAINS TRANSFORMER	*TS000590R
⚠ 4	U		MAINS TRANSFORMER	*TS000580R
⚠ 4	F		MAINS TRANSFORMER	*TS000600R
8		4822 459 04262	FRONT PANEL	204W248010
9		4822 450 10173	DISPLAY WINDOW	204W158010
11		4822 529 10358	MINI DAMPER	204W130010
13		4822 256 10274	CASSETTE BOX	204W271010
14		4822 492 11229	CASSETTE SPRING	204W115010
15		4822 492 11231	BOX SPRING (R)	204W115020
16		4822 492 11232	BOX SPRING (L)	204W115120
17		4822 402 10445	EJECT LEVER (B)	204W354020
18		4822 402 10446	LEVER STAY (B)	204W126020
19		4822 402 10447	EJECT LEVER (A)	204W354010
20		4822 402 10448	LEVER STAY (A)	204W126010
21		4822 492 11233	SPRING	204W115030
22		4822 249 10532	C.MECHA (A)REC/PB	204W304010
23		4822 249 10533	C.MECHA (B)PB	204W304020
24		4822 410 10645	EJECT BUTTON	204W270020
25		4822 410 10646	POWER BUTTON	204W270030
26		4822 410 10647	VOL KNOB	204W154010
27		4822 410 10648	FUNCTION BUTTON	204W270010
30		4822 450 10174	REMOCON WINDOW	204W355010
33		4822 443 10398	CASSETTE DOOR	204W162010
34		4822 450 10175	WINDOW	204W158020
43		4822 532 12676	FOOT CAP	204W067010
51		4822 410 10649	PUSH BUTTON	204W270040
54		4822 442 00483	KNOB COVER	204W053010
55		4822 459 11172	MARANTZ BADGE	185J251012
0TA	01/02/05	4822 736 14591	INSTRUCTIONS	204W851310
0TA	U		INSTRUCTIONS	204W851250
0TA	F		INSTRUCTIONS	204W851110

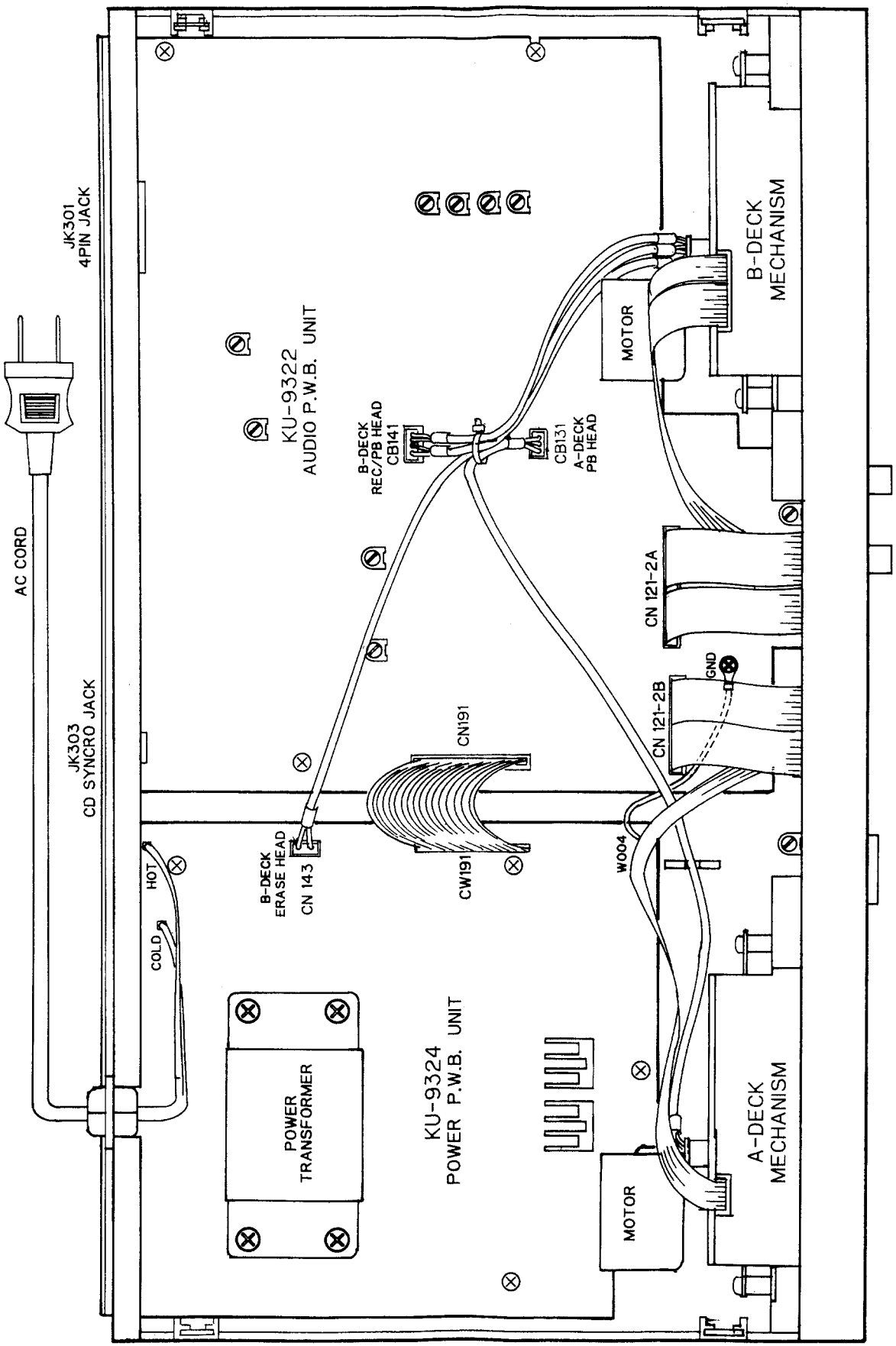
7. BUNDLE DIAGRAM



(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

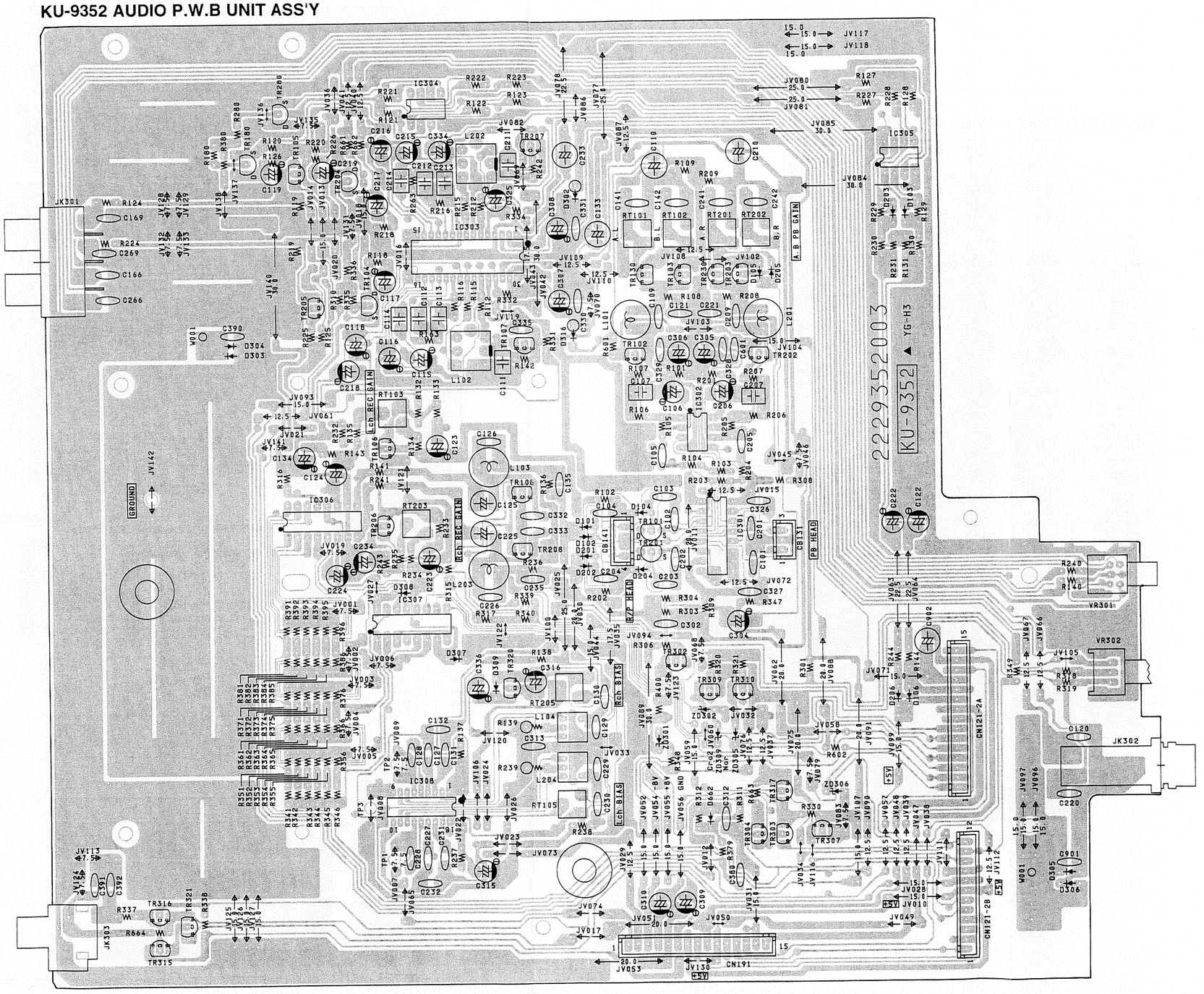
POS. NO	VERS. COLOR	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (USA/JPN)
⚠ 4	01/02/05	4822 146 10584	MAINS TRANSFORMER	*TS000590R
⚠ 4	U		MAINS TRANSFORMER	*TS000580R
⚠ 4	F		MAINS TRANSFORMER	*TS000600R
8		4822 459 04262	FRONT PANEL	204W248010
9		4822 450 10173	DISPLAY WINDOW	204W158010
11		4822 529 10358	MINI DAMPER	204W130010
13		4822 256 10274	CASSETTE BOX	204W271010
14		4822 492 11229	CASSETTE SPRING	204W115010
15		4822 492 11231	BOX SPRING (R)	204W115020
16		4822 492 11232	BOX SPRING (L)	204W115120
17		4822 402 10445	EJECT LEVER (B)	204W354020
18		4822 402 10446	LEVER STAY (B)	204W126020
19		4822 402 10447	EJECT LEVER (A)	204W354010
20		4822 402 10448	LEVER STAY (A)	204W126010
21		4822 492 11233	SPRING	204W115030
22		4822 249 10532	C.MECHA (A)REC/PB	204W304010
23		4822 249 10533	C.MECHA (B)PB	204W304020
24		4822 410 10645	EJECT BUTTON	204W270020
25		4822 410 10646	POWER BUTTON	204W270030
26		4822 410 10647	VOL KNOB	204W154010
27		4822 410 10648	FUNCTION BUTTON	204W270010
30		4822 450 10174	REMOCON WINDOW	204W355010
33		4822 443 10398	CASSETTE DOOR	204W162010
34		4822 450 10175	WINDOW	204W158020
43		4822 532 12676	FOOT CAP	204W067010
51		4822 410 10649	PUSH BUTTON	204W270040
54		4822 442 00483	KNOB COVER	204W053010
55		4822 459 11172	MARANTZ BADGE	185J251012
0TA	01/02/05	4822 736 14591	INSTRUCTIONS	204W851310
0TA	U		INSTRUCTIONS	204W851250
0TA	F		INSTRUCTIONS	204W851110

7. BUNDLE DIAGRAM

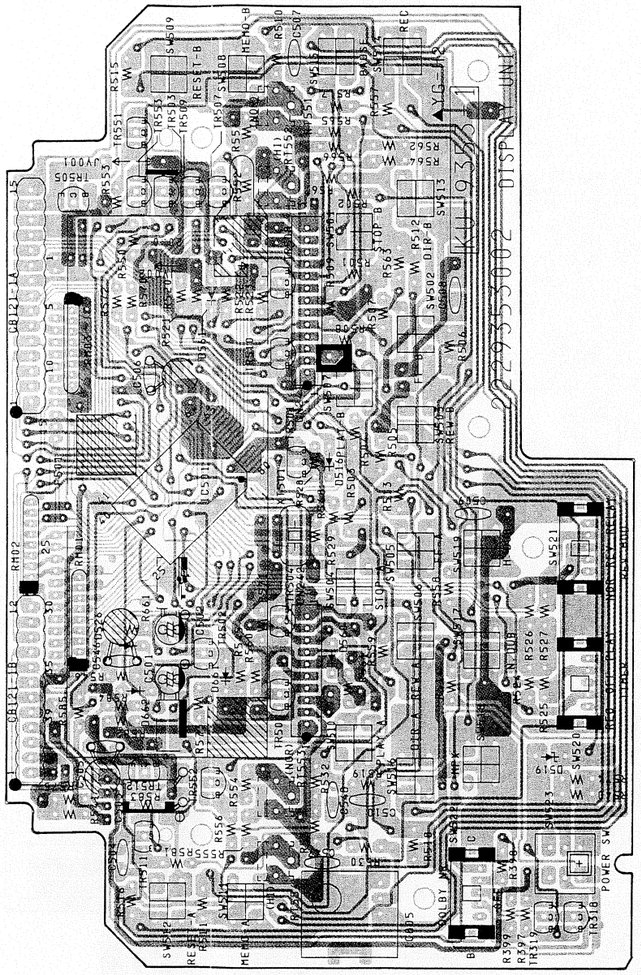


8. PRINTED WIRING BOARD PATTERNS

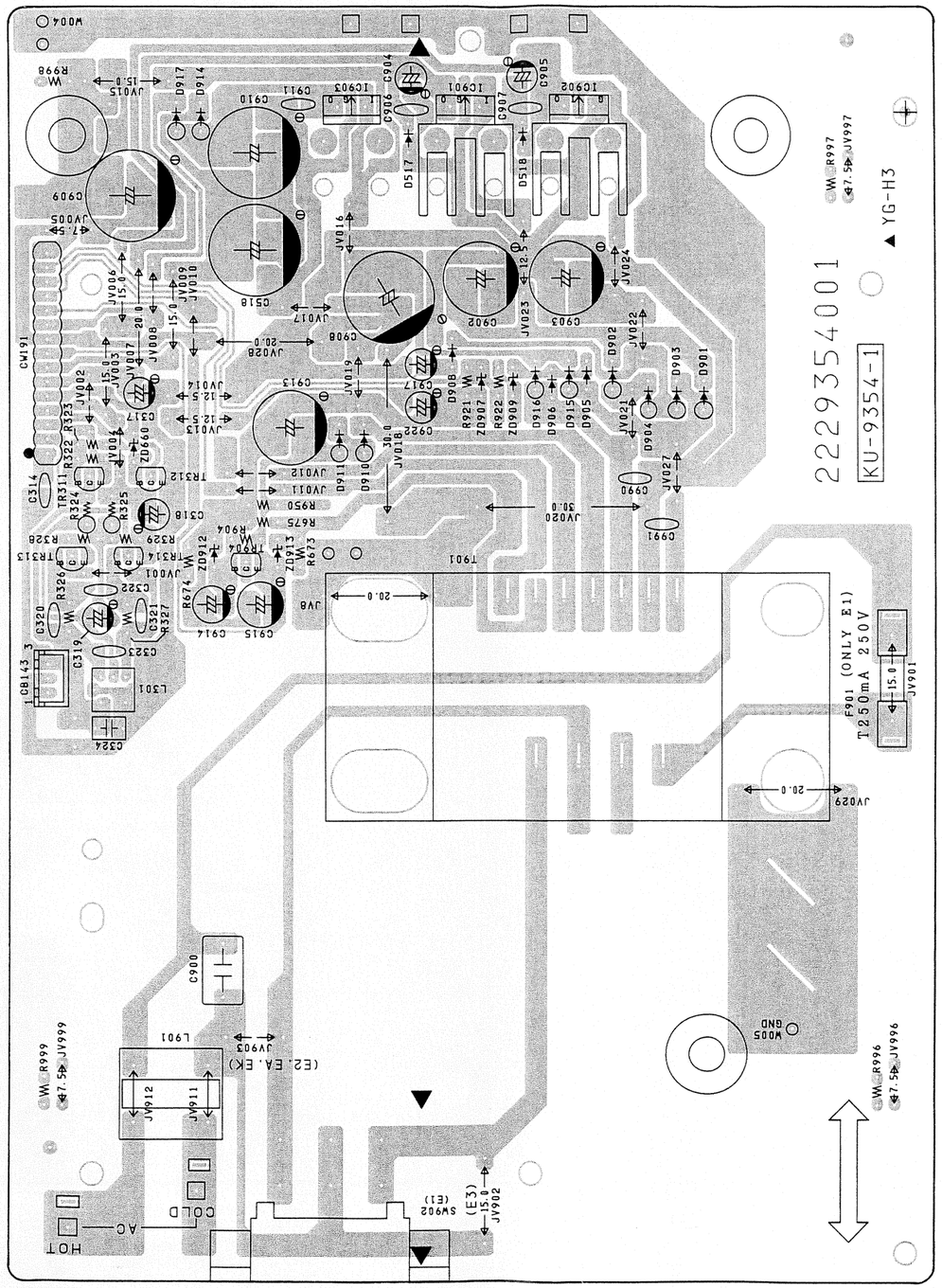
KU-9352 AUDIO P.W.B UNIT ASS'Y



KU-9353 DISPLAY P.W.B UNIT ASS'Y



KU-9354 POWER P.W.B UNIT ASS'Y



Note: F901 Multi-voltagemodel only TV903 Europe, U.K. and Australia models.

9. ELECTRICAL PARTS LIST

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (USA/JPN)
			AUDIO UNIT	
			DIODE	
D101				
|		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D106				
D201				
|		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D206				
⚠ D302		4822 130 32816	DIODE 1SR35-200A	HD20016210
D305				
|		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D308				
⚠ D316		4822 130 32816	DIODE 1SR35-200A	HD20016210
D662		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
			INTEGRATED CIRCUIT	
IC301		4822 209 83717	HD14053BP	HC10056010
IC302		4822 209 14617	UPC4570C	*HC103780R
IC303		4822 209 14621	HA12170NT	*HC103800R
IC304		4822 209 61187	BA15218	HC10089210
IC305		4822 209 61187	BA15218	HC10089210
IC306		4822 209 14618	CXA1198AP	*HC103790R
IC307		4822 209 14619	HD14051BP	*HC103770R
IC308		4822 209 72874	UPC1297CA	HC10200060
			JACK	
JK302		4822 265 10688	H/P JACK (GOLD)	*YT000980R
			COIL AND FILTER	
L102		4822 157 10886	MPX FILTER	*TC000210R
L104		4822 157 10887	HX STEPUP COIL	*TC000220R
L202		4822 157 10886	MPX FILTER	*TC000210R
L204		4822 157 10887	HX STEPUP COIL	*TC000220R
			TRANSISTOR	
TR101		4822 130 63673	2SK373(Y)	HF203731Y0
TR102		4822 130 63211	DTA114TS	BA10003210
TR103		4822 130 63211	DTA114TS	BA10003210
TR104		4822 130 10616	2SK184GR/2SK381B	*HF200200R
TR105		4822 130 60107	2SA933S	HT110482B0
TR106		4822 130 42431	2SC1740S	HT317402F0
TR107		4822 130 42683	DTC124ES	BA20024210
TR108		4822 130 61723	DTC323TS	BA20028210
⚠ TR130		4822 130 61189	DTC114TS	BA20017210
TR180		4822 130 10616	2SK184GR/2SK381B	*HF200200R
TR201		4822 130 63673	2SK373(Y)	HF203731Y0
TR202		4822 130 63211	DTA114TS	BA10003210
TR203		4822 130 63211	DTA114TS	BA10003210
TR204		4822 130 10616	2SK184GR/2SK381B	*HF200200R
TR205		4822 130 60107	2SA933S	HT110482B0
TR206		4822 130 42431	2SC1740S	HT317402F0
TR207		4822 130 42683	DTC124ES	BA20024210
TR208		4822 130 61723	DTC323TS	BA20028210
⚠ TR230		4822 130 61189	DTC114TS	BA20017210
TR280		4822 130 10616	2SK184GR/2SK381B	*HF200200R
TR302		4822 130 61227	DTA114ES	BA10007210
TR303		4822 130 42683	DTC124ES	BA20024210
TR304		4822 130 62797	DTA144WS	BA20041210
TR307		4822 130 50437	DTC143ES	BA20063210
TR309		4822 130 61321	DTC124XS	BA20014210
TR310		4822 130 61321	DTC124XS	BA20014210
TR315		4822 130 61227	DTA114ES	BA10007210
⚠ TR316		4822 130 60588	DTC114ES	BA20010210
TR317		4822 130 63211	DTA114TS	BA10003210
⚠ TR321		4822 130 60588	DTC114ES	BA20010210

POS. NO	VERS. COLOR	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (USA/JPN)
			VARIABLE RESISTOR	
VR301		4822 101 11642	VAR.RESISTER 100K(15A)	*RM000230R
VR302		4822 101 11643	VAR.RESISTER 1KB (BIAS)	*RM000220R
			ZENER DIODE	
ZD301		4822 130 10617	ZENOR HZS6A-1/MTZJ5.6A	*HD301250R
ZD302		4822 130 10618	ZENOR HZS9B-1/MTZJ9.1A	*HD301270R
ZD305		4822 130 10618	ZENOR HZS9B-1/MTZJ9.1A	*HD301270R
ZD306		4822 130 10618	ZENOR HZS9B-1/MTZJ9.1A	*HD301270R
ZD309		4822 130 10618	ZENOR HZS9B-1/MTZJ9.1A	*HD301270R
			DISPLAY UNIT	
			ZENER DIODE	
D516		4822 130 10618	ZENOR HZS9B-1/MTJ9.1A	*HD301270R
D519		4822 130 10618	ZENOR HZS9B-1/MTJ9.1A	*HD301270R
			DIODE	
D526		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D560		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D561		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D661		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D662		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
			FL DISPLAY	
FL501		4822 135 00061	FLD BJ369GK	*HQ300200R
			INTEGRATED CIRCUIT	
IC501		4822 209 14622	HD6433724E06F	*HU100260R
IC805		4822 130 10619	IR RECIEVER SBX1610-52	*HW100320R
			TRIMMING RESISTOR	
RT551		4822 101 11644	TRIM POT 1K (TAPE SPEED)	RA01020470
RT552		4822 101 11645	TRIM POT 2.2K (TAPE SPEED)	RA02220210
RT553		4822 101 11644	TRIM POT 1K (TAPE SPEED)	RA01020470
RT554		4822 101 11645	TRIM POT 2.2K (TAPE SPEED)	RA02220210
			SWITCH	
SW501				
|		4822 276 13786	TACT SW SKHHAJ	*SP000660R
SW519				
SW520				
|		4822 277 11593	SLIDE SW SSSF013-S12N0	*SS000510R
SW522				
SW523		4822 276 13787	PUSH SWITCH SPPH13-W	*SP000650R
			TRANSISTOR	
TR318		4822 130 50437	DTC143ES	BA20063210
TR319		4822 130 50437	DTC143ES	BA20063210
TR501		4822 130 61227	DTA114ES	BA10007210
TR502		4822 130 42594	DTC144ES	BA20012210
TR503		4822 130 50437	DTC143ES	BA20063210
TR504		4822 130 41945	2SB562C	HT205621C0
TR505		4822 130 50437	DTC143ES	BA20063210
TR506		4822 130 41945	2SB562C	HT205621C0
TR507		4822 130 50437	DTC143ES	BA20063210
TR508		4822 130 41945	2SB562C	HT205621C0
TR509		4822 130 50437	DTC143ES	BA20063210
TR510		4822 130 41945	2SB562C	HT205621C0
TR511		4822 130 42593	DTA124ES	BA10016210
TR512		4822 130 42593	DTA124ES	BA10016210
TR551		4822 130 60107	2SA933S	HT110482B0
TR552		4822 130 60107	2SA933S	HT110482B0
TR553		4822 130 50437	DTC143ES	BA20063210

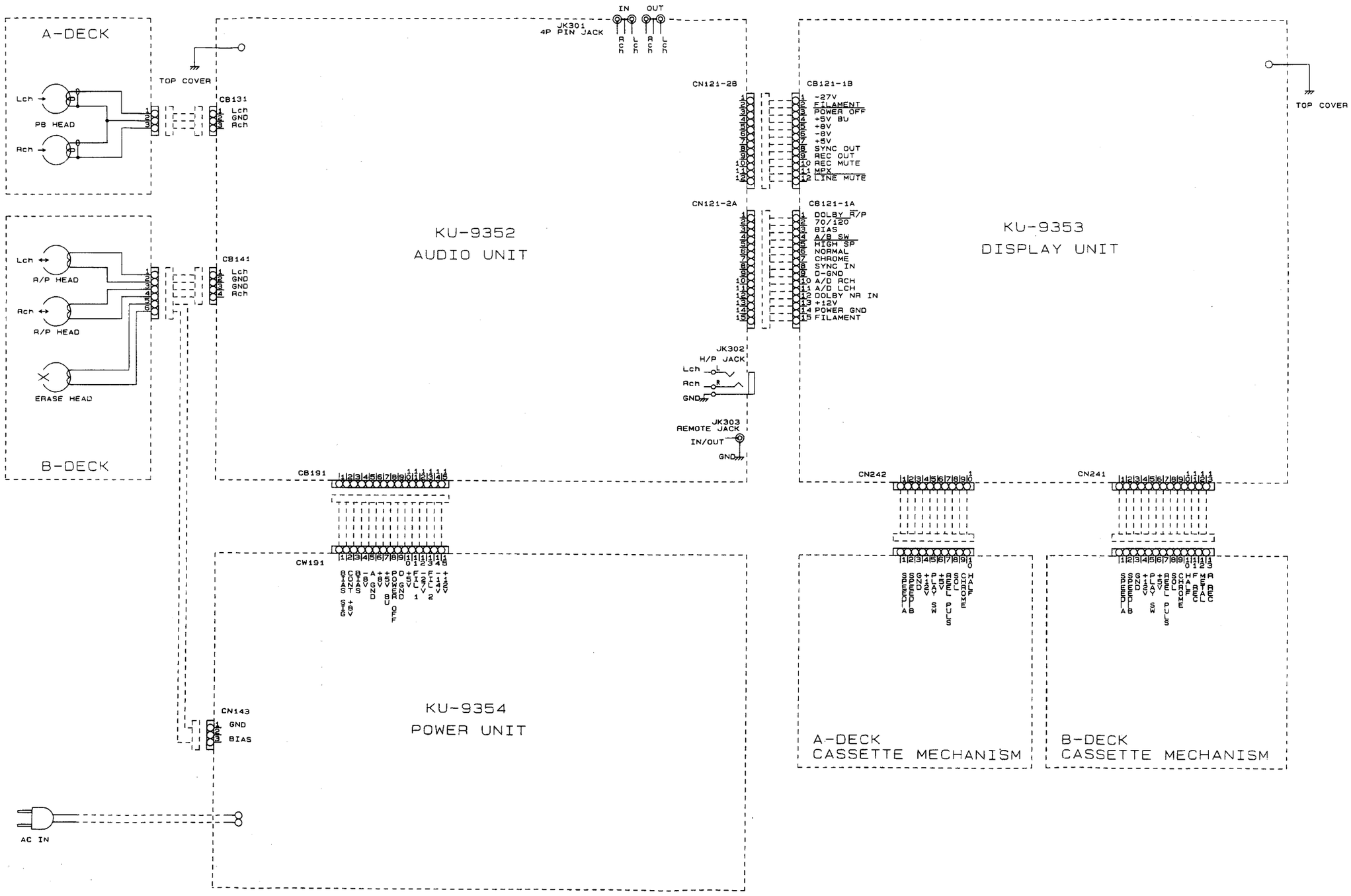
(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (USA/JPN)
			POWER UNIT	
			DIODE	
D517		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D518		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
⚠ D901				
|		4822 130 32816	RECTIFIER 1SR35-200A	HD20016210
⚠ D904				
D905		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D906		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
D908		4822 130 10615	DIODE 1SS270A/1N4125	*HD200980R
⚠ D910		4822 130 32816	DIODE 1SR35-200A	HD20016210
⚠ D911		4822 130 32816	DIODE 1SR35-200A	HD20016210
⚠ D914				
|		4822 130 32816	DIODE 1SR35-200A	HD20016210
⚠ D917				
			INTEGRATED CIRCUIT	
⚠ IC901		4822 209 14623	NJM7808FA	HC3890809F
⚠ IC902		4822 209 14624	NJM7908FA	HC3990809F
⚠ IC903		4822 209 73674	NJM7806FA	HC38906090
			COIL	
L301		4822 157 11046	OSC COIL	*TC000240R
			TRANSISTOR	
TR311		4822 130 41945	2SB562C	HT205621C0
TR312		4822 130 50437	DTC143ES	BA20063210
TR313		4822 130 42431	2SC1740S	HT317402F0
TR314		4822 130 42431	2SC1740S	HT317402F0
TR904		4822 130 41945	2SB562C	HT205621C0
			ZENER DIODE	
ZD660		4822 130 10621	ZENOR HZS2C-1/MTZJ2.2B	*HD301210R
ZD907		4822 130 10622	ZENOR HZS5C-1/MTZJ5.1A	*HD301240R
ZD909		4822 130 10623	ZENOR HZS4C-1/MTZJ4.3A	*HD301220R
ZD912		4822 130 10624	ZENOR HZS27-1/MTZJ27B	*HD301280R
ZD913		4822 130 10625	ZENOR HZS5A-1/MTZJ4.3C	*HD301230R
ZD913		4822 130 10626	ZENOR HZS9A-1/MTZJ8.2B	*HD301260R

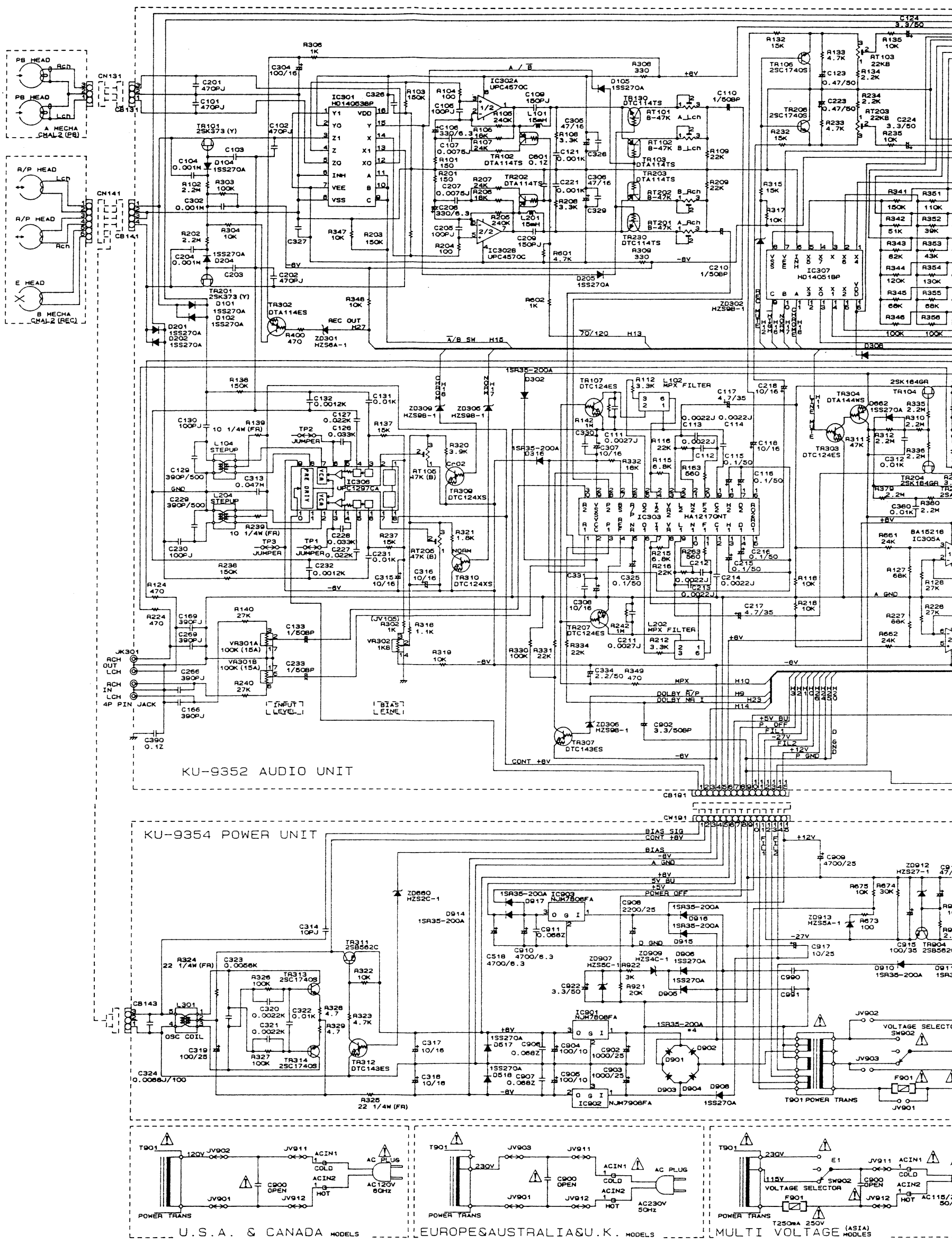
NOTE ON SAFETY :

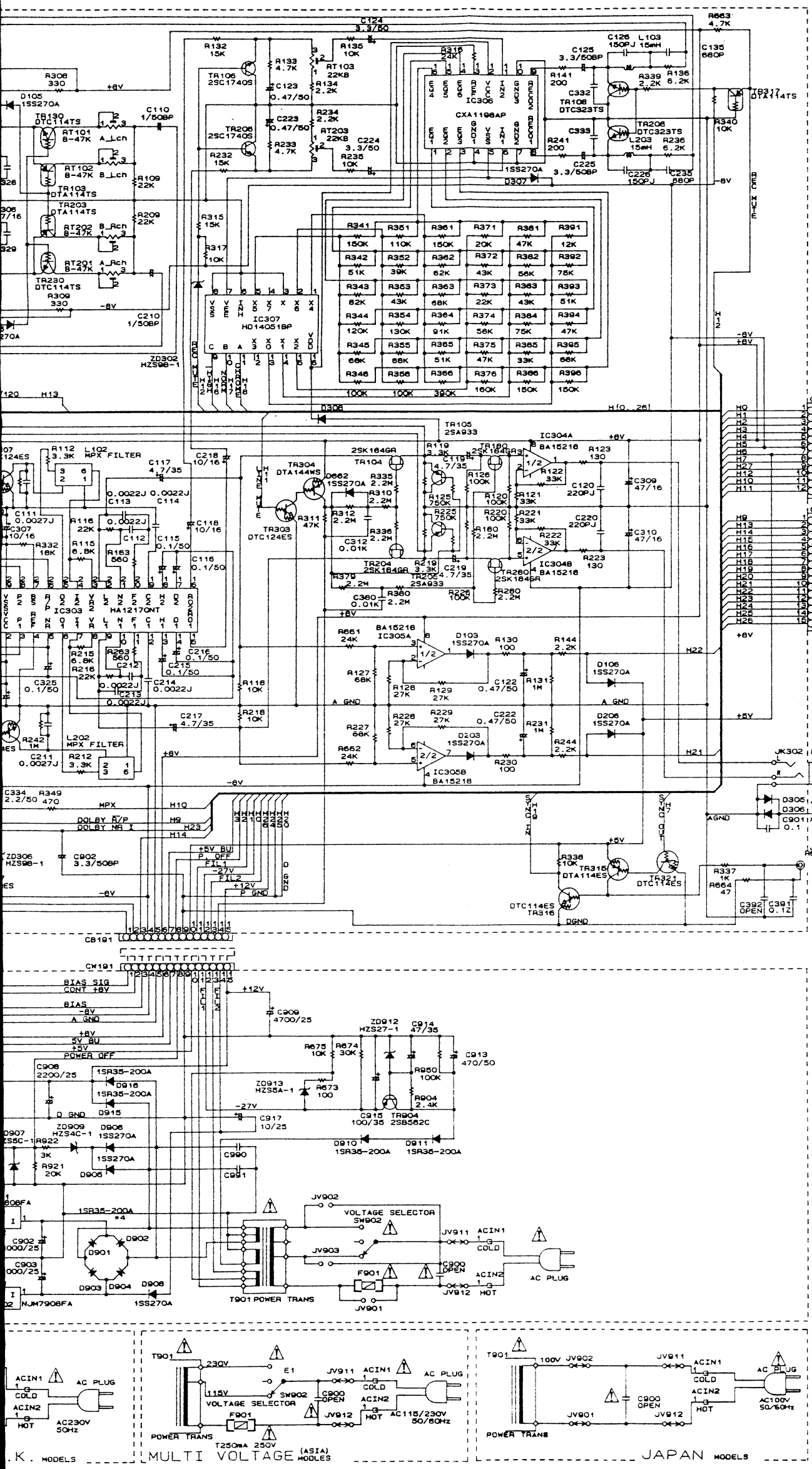
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

10. WIRING DIAGRAM



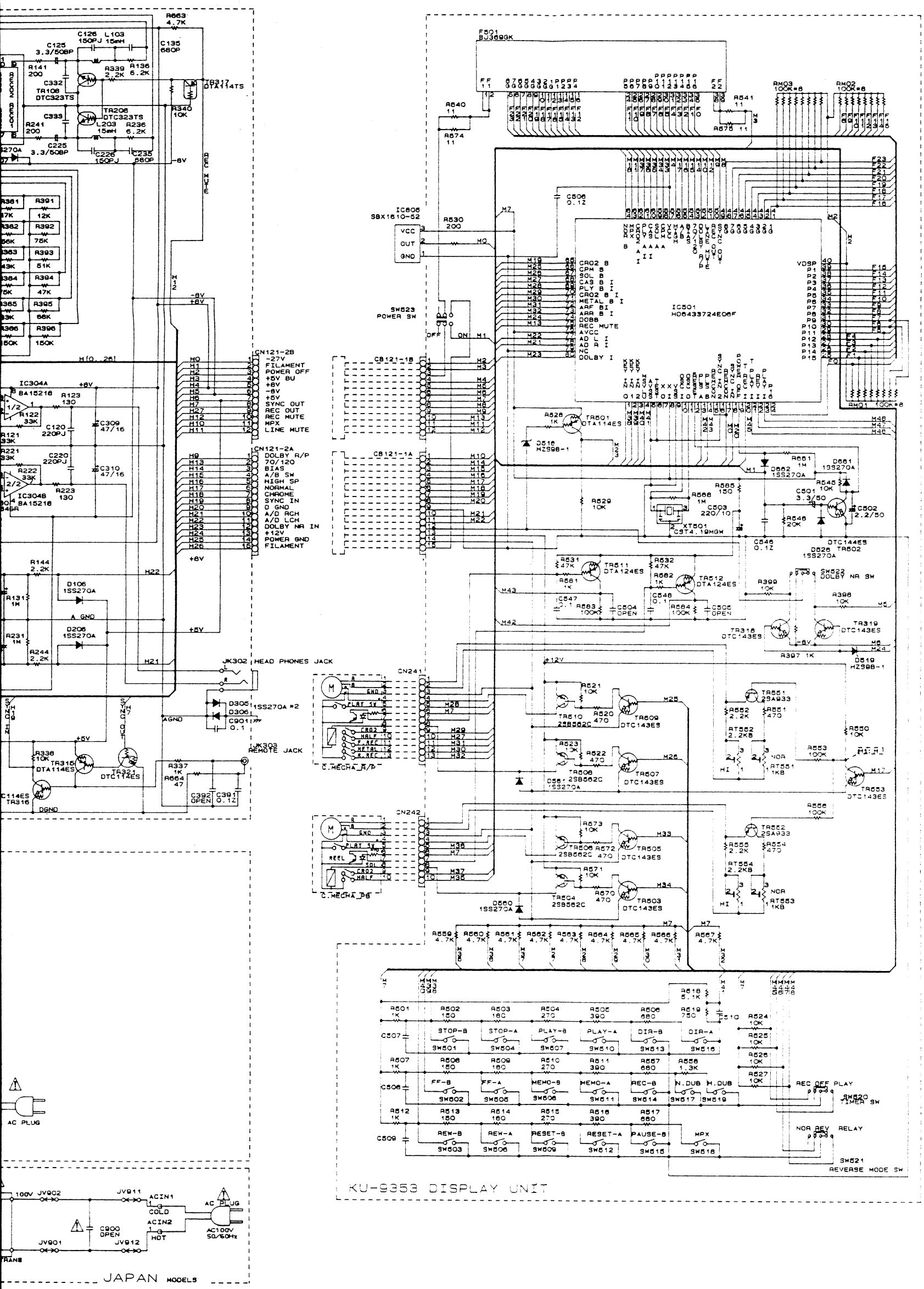
11. SCHEMATIC DIAGRAM





Note:
- Resistance shall be 1/4 W unless otherwise specified and the unit is ohr
- The unit of capacitor is μF, P is pF unless otherwise specified.
- This circuit diagram shows the basic circuit. It is subject to change for th

Parts marked with this symbol ⚠ ▨ have critical characteristic.
Use ONLY replacement parts recommended by the manufacturer.



Note:
- Resistance shall be 1/4 W unless otherwise specified and the unit is ohm.
- The unit of capacitor is μF, P is pF unless otherwise specified.
- This circuit diagram shows the basic circuit. It is subject to change for the purpose of improvement.

Parts marked with this symbol ⚠ ▨ have critical characteristic.
Use ONLY replacement parts recommended by the manufacturer.

12. SEMICONDUCTORS

- IC's

- BA15218
- μPC4570C

- μPC1297CA

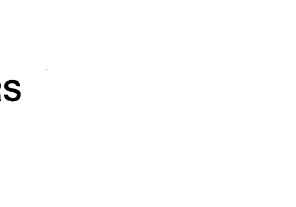
3 GND
2 INPUT
1 OUTPUT

- NJM7908FA

- HD6433724FC80F

3 INPUT
2 GND
1 OUTPUT

- NJM7808FA
- NJM7806FA



- CXA1198AP
- HD14051BP

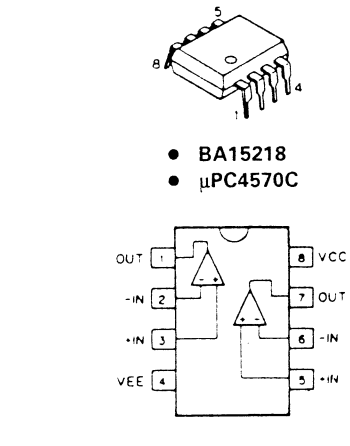
- HD14053BP

- HA112170NT

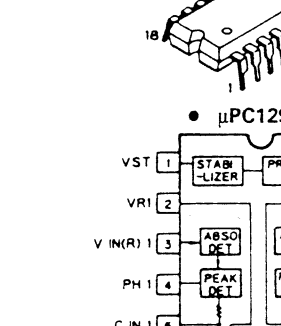
- REMOTE SENSO

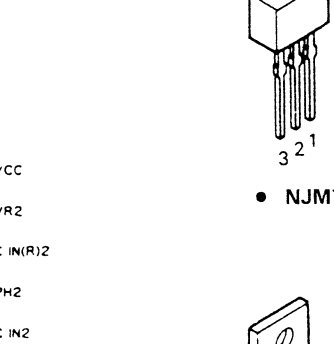
(SBX1610-52)

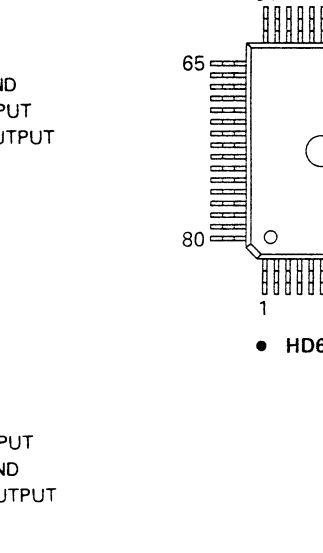
1. Vcc
2. Output
3. GND
4. Case Fin
5. Case Fin



- CXA1198AP

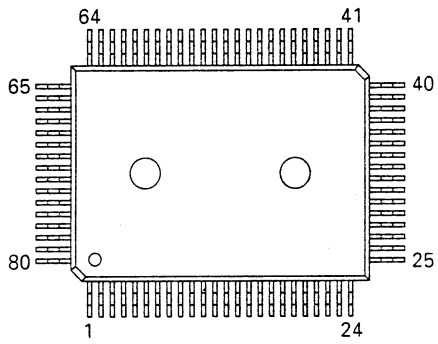






3 GND
2 INPUT
1 OUTPUT

17908FA

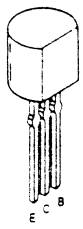


- **HD6433724FC80F**

3 INPUT
2 GND
1 OUTPUT

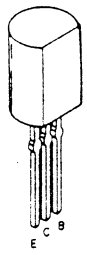
17808FA
17806FA

• TRANSISTORS



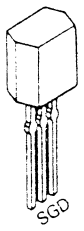
B (Base)
C (Collector)
E (Emitter)

- **2SA933S**
- **2SK373**
- **2SC1740**

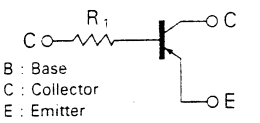


B (Base)
C (Collector)
E (Emitter)

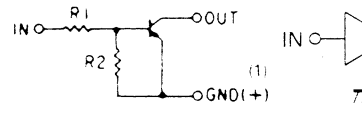
- **2SB562**



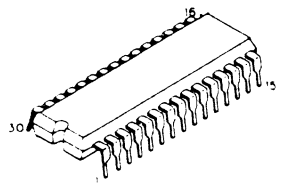
- **2SK184**
- **2SK381**



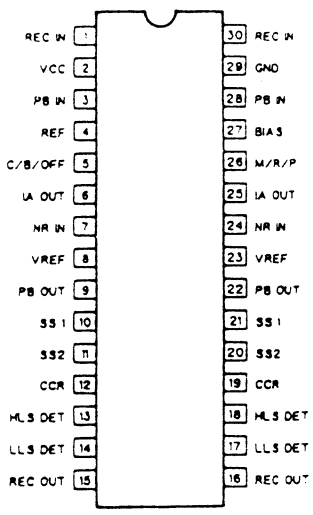
	R1
DTA114TS	10 kohm
DTA124TS	22 kohm
DTC323TS	2.2 kohm



	R1	R2
DTA114ES	10 kohm	10 koh
DTA124ES	22 kohm	22 koh
DTA144ES	47 kohm	47 koh
DTA144WS	47 kohm	22 koh

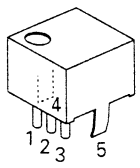


- **HA112170NT**

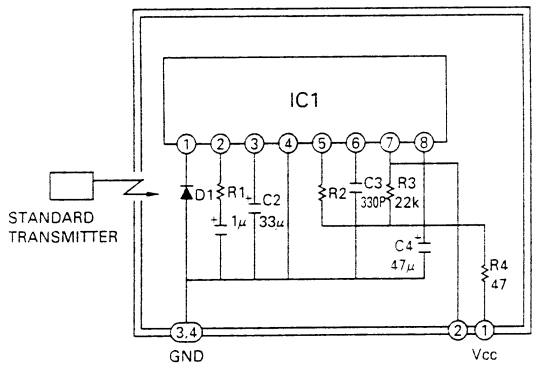


• REMOTE SENSOR

(SBX1610-52)

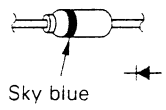


1. **Vcc**
2. **Output**
3. **GND**
4. **Case Fin**
5. **Case Fin**



IC1 : **CX20106A Chip**
D1 : **PIN Photo Diode Chip**
C1, C2, C4 : **Aluminum Electrolytic Capacitor**
C3 : **SL Characteristic ±5%**
R1 : **Gain Adjuster**
R2 : **fo Adjust ±1% USE**
R3, R4 : **±5%**

• DIODES



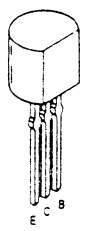
Sky blue

1SS270A

Navy b

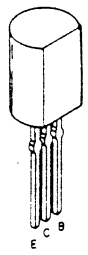
HZ
HZ
HZ
HZ
HZ

• TRANSISTORS



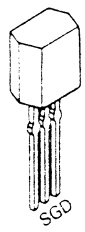
B (Base)
C (Collector)
E (Emitter)

- **2SA933S**
- **2SK373**
- **2SC1740**



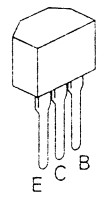
B (Base)
C (Collector)
E (Emitter)

- **2SB562**



S (Source)
G (Gate)
D (Drain)

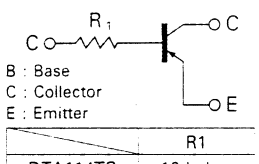
- **2SK184**
- **2SK381**



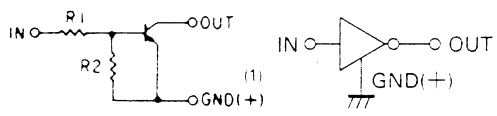
B (Base)
C (Collector)
E (Emitter)

DTA114ES
DTA114TS
DTA124ES
DTA124TS
DTA144ES
DTA144WS

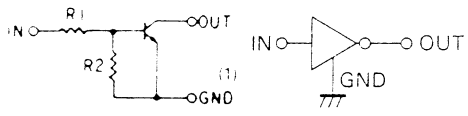
DTC114ES
DTC124ES
DTC124XS
DTC143ES
DTC144ES
DTC323TS



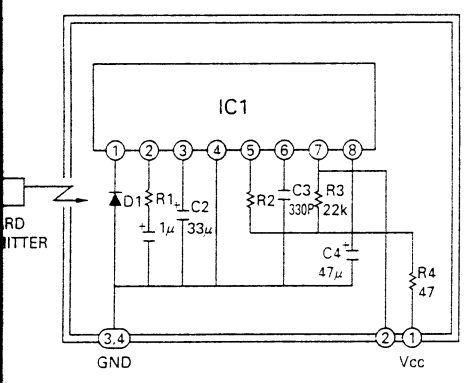
	R1
DTA114TS	10 kohm
DTA124TS	22 kohm
DTC323TS	2.2 kohm



	R1	R2
DTA114ES	10 kohm	10 kohm
DTA124ES	22 kohm	22 kohm
DTA144ES	47 kohm	47 kohm
DTA144WS	47 kohm	22 kohm



	R1	R2
DTC114ES	10 kohm	10 kohm
DTC124ES	22 kohm	22 kohm
DTC124XS	22 kohm	47 kohm
DTC143ES	4.7 kohm	4.7 ohm
DTC144ES	47 kohm	47 kohm



IC1 : **CX20106A Chip**
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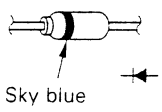
C3 : **SL Characteristic ±5%**
R1 : **Gain Adjuster**
R2 : **fo Adjust ±1% USE**
R3, R4 : **±5%**

• DIODES



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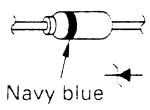
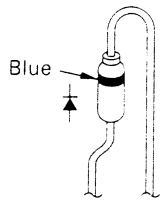


HZS2C-1
HZS5C-1
HZS6A-1
HZS9A-1
HZS27-1



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